November 13, 2002

Mr. Edgar T. Hurle, Director
Environmental Planning
Bureau of Policy and Planning
Connecticut Department of Transportation
P.O. Box 317546
Newington, CT 06131-7546

Dear Ned:

This letter concerns ConnDOT's *Statement of Wetlands and Wildlife Habitat Block Impacts and Compensation Plan for the Route 11 Corridor* ("the Statement and Plan"), handed out at our meeting at your office on October 2, 2002. EPA appreciates the opportunity to review these documents and provide this initial reaction.[1]

We are pleased that the Statement and Plan addresses all three classes of impacts–direct, indirect, and secondary. We also appreciate that ConnDOT used specific methodologies to quantify indirect and secondary adverse impacts. Moreover, we understand that the Plan is preliminary–ConnDOT intends it as an initial proposal to generate discussion. As explained more completely below, we believe that due to certain flaws in the assumptions and methodologies employed, the Statement and Plan markedly underestimates the adverse impacts for all three classes of impacts; as a consequence, this initial proposed compensation plan, even if implemented fully, would be seriously deficient if the goal is to provide a meaningful reduction of and compensation for the significant adverse impacts of the Route 11 project. In the interest of moving the discussion forward, we focus below is on major issues and concerns. We would be happy to provide more detailed comments or analysis if that would be helpful.

Impact Assessment

Direct and Indirect Impacts. Based upon his field visit of November 5, 2002, Vern Lang of the USFWS informed us that several streams and wetland areas may not have been identified in the middle portion of the alignment (located between habitat blocks 1 and 2). Vern found a number of perennial and intermittent streams and a few wetland areas during his field visit that appeared

[1]As you know, EPA has in other correspondence voiced doubt about the environmental acceptability of the Route 11 project and identified the proposal as a candidate for a §404(c) action based on serious concerns about the significance of impacts and the analysis of alternatives. This letter neither alters nor further addresses those issues and pertains only to our review of the Statement and Plan.

not to be identified on the detailed maps handed out at the October 2nd meeting (see USFWS letter on the Statement and Plan for a complete description of his field observations on this point). This issue needs to be addressed to determine if, in fact, resources were missed and need to be delineated and assessed.

Table 1 in the Statement lists the various functions and values of wetlands to be directly affected and quantifies the extent of wetlands that provide these functions and values. However, the Statement addresses none of these functions and values qualitatively. We recognize that the DEIS provided a generic description of the functions and values found in the Route 11 corridor, but the Statement should provide a reasonably detailed description of the specific functions and values of the wetlands and streams that will be directly affected by the proposed highway. Also, the Statement mentions that included in the 16.8 acres of wetlands to be directly affected are 10 perennial streams. Numerous intermittent streams run throughout the preferred alignment and these should be included in the evaluation as well.

Since our first comment letter in May 1999 on this project, EPA has consistently recommended that comprehensive inventories of flora and especially fauna be performed throughout the Route 11 corridor, not just within the confines of the preferred alignment. These inventories have not occurred, nor have studies of wildlife movement patterns been conducted which are necessary to optimally locate impact minimization features such as split barrels/widened medians, bridging, overpasses and underpasses for wildlife. We believe such minimization measures is the only realistic way to reduce the severity of indirect impacts (neither wetland creation nor land preservation is effective in this regard) and thus this dimension should be pursued both aggressively and rigorously. An especially concerted effort to minimize impacts should be undertaken in habitat blocks #1 and #2 by increasing the permeability of the road to wildlife through strategically placed overpasses and underpasses for animal movement.

The seasonal pool inventory[2] is informative while also illustrating a problem in the approach employed for assessing indirect and secondary adverse impacts: ConnDOT first establishes a narrow physical limit for conducting inventories of aquatic resources and the associated plants and wildlife, then evaluates the potential effects of the proposed highway on those resources and the plants and wildlife within those boundaries. Rather, the inventories should be conducted widely throughout the entire corridor first which then allows a fully informed evaluation of indirect and secondary adverse impacts be performed. The seasonal pool inventory should have extended outward from the edge of highway clearing on the order of 1,000 to 2,000 feet, the distance that highly dispersive pool species such as wood frog and red-spotted newt (both found in the pools during the inventory) may travel (well documented in field studies of migration and dispersal distances; see Berven and Grudzien, 1990; Healy, 1975; and Gill, 1978). The 500 feet

[2]We have several specific comments about the Draft Seasonal Pool Inventory and Evaluation which we could provide at a later date.

distance used by ConnDOT both for the inventory and for an upland habitat zone around pools is too limited for a complete sense of the adverse impact likely to occur.

With respect to indirect impacts, we agree that ConnDOT's use of a 1,600 feet zone on either side of the proposed highway is reasonable (but not so for an inventory of resources, as noted above). However, ConnDOT's theory that only 217 acres of the habitat blocks should be considered as adversely affected by the highway appears to rely on unsubstantiated assumptions. We are troubled by ConnDOT's premise that the range and scale of adverse effects of a highway upon aquatic resources effectively equate to those of residences and small country roads, and that the severity of adverse effects are uniform regardless of distance from the source of disturbance, be it highway, small country road or residence. The scientific literature documents these distinctions (see our prior letters on this project as well as on the CT Route 6 project).

Another concern with the approach described in the Statement and Plan is that it discounts the possibility that the highway could cause additional adverse impacts in areas that may have suffered some fragmentation effects already from residential development or small roads. Such an approach would only make sense for areas that have been rendered devoid of any value due to other influences, a situation which does not generally apply in the corridor. For example, if we understand the approach taken in the Statement and Plan, a wetland area located 1500 feet from the edge of a residential development and 200 feet from a new Route 11 would not be considered to suffer any indirect effect from the highway. However, such a conclusion would, on its face, be wrong and points to a problem in the underlying method of assessing the indirect impacts.

In summary, assuming an equal level of impact over 1600 feet would overestimate the harm in some areas and underestimate it in others. The assumption that disturbances which vary markedly from each other (e.g., a small road versus a major highway) have the same reach and magnitude of indirect impact is not valid in our view. And assuming that an area subject to some form of indirect effect currently could not suffer further damage from the highway also does not appear realistic. The net effect of these methodological difficulties is to underestimate the full extent of the indirect impact. Therefore, after the inventory of aquatic resources, including flora and fauna, as described above, we believe that ConnDOT should revise its assessment of indirect impacts taking into account these real world differences (even then we appreciate that the analysis may not be highly precise but it would be more accurate). Moreover, the re-evaluation should include a qualitative assessment of indirect adverse impacts–that is, one that describes in narrative form how the highway will actually impact the functions and values of the affected aquatic resources.

Secondary Impacts. ConnDOT's analysis of secondary impacts acknowledges that consideration of secondary impacts is an important part of the decision-making surrounding this transportation project. Recent studies have shown the strong connection between transportation and land use, and the potential that transportation projects have for inducing secondary impacts such as sprawl, so we applaud ConnDOT's recognition of this issue. However, we believe ConnDOT's analysis

of induced development is too limited and does not provide sufficient information to describe fully the potential secondary impacts of the project. Although we believe that ConnDOT intends to disclose fully the complete suite of impacts from the Route 11 project, we found the analysis problematic in three respects:

1. The analysis is based on unsupported assumptions about the magnitude and types of predicted growth as well as that travel time savings of 2-7 minutes will not have a significant impact on growth; ConnDOT should explain the basis for those assumptions.

2. The analysis area for induced growth is too small; growth is likely to be induced well beyond a one-mile radius around the interchanges, and even beyond the four towns that border the proposed highway.

3. There is no quantitative data regarding the expected changes in population, housing, or employment over the next 20 years (design year 2020), or assessment of the secondary environmental impacts of that induced growth. Examples of such environmental impacts include water quality impacts from runoff; wetland impacts from direct fill and upland development; fragmentation of habitat; and demand on water supplies.

The analysis asserts that because residential development is continuing and because there are no appreciable reductions in commute time (see comments below), Route 11 will not induce additional growth. This assertion needs to be substantiated before any analysis can be based upon it. The question is not whether growth will continue in southeastern Connecticut, but whether the highway will induce growth above and beyond that which will occur without the investment. In other projects, highways have been shown to change the amount and location of growth. For example, in the I-93 corridor in NH, a study commissioned by the NH Department of Transportation has shown that widening an 18-mile segment of I-93 from Manchester to the Massachusetts state line will result in approximately 41,000 more people and 22,000 more jobs in the study area in the year 2020 *above and beyond* the anticipated growth if the highway is not widened. Whether the same pattern of increase would occur in Connecticut cannot be determined without an adequate analysis.

The analysis argues that interchange-related development is confined to industrial and commercial development. We see no evidence for this, and the basis for making this assertion should be presented and validated. Although land in the immediate vicinity of the interchange may be more appealing for industrial and commercial development, it is unlikely that residentially-zoned lands within a mile of an interchange (and beyond) will not be under additional development pressure. Absent some substantive justification for considering these residentially-zoned lands, which occupy the majority of the one-mile radius, as a “development limitation,” analysis should be broadened to include residential development.

The document suggests that the overall reduction in travel time if Route 11 is completed is expected to range from 2.3 to 7.4 minutes, and that these savings would not be a substantial

catalyst for new residential growth. The basis for this conclusion should be provided since time savings of this magnitude are believed to have the potential for moderate to strong changes in land use (Oregon DOT, 2001, *A Guidebook for Evaluating the Indirect Land Use and Growth Impacts of Highway Improvements*.) Further, the analysis indicates that one factor in inducing residential growth is a reduction in commute time to employment centers. Location of

employment centers certainly is a factor in residential growth, but since the majority of trips are for purposes other than work, the analysis should consider more than commute trips.

We are concerned that the analysis underestimates the potential for growth because of the assumption that induced growth impacts from the highway will be limited to within a one-mile radius of the interchanges. Indeed, other state Departments of Transportation have found impacts far beyond a one-mile radius. In the I-93 project cited above, NH DOT delineated a study area that included 29 communities stretching from northern Massachusetts to Concord, NH, and at least two towns "deep" on either side of the road. It neither restricted its analysis to the five communities that border the widening project, nor to a one-mile radius around the interchanges (also, it did not restrict the analysis solely to commercial development, as discussed above). Whether induced growth in southeastern Connecticut would follow the same pattern as in New Hampshire cannot be determined unless ConnDOT conducts a similar analysis without arbitrary constraints of distance and development type. EPA is willing to work with ConnDOT to identify a suitable method for conducting such an analysis.[3]

The secondary impacts assessment does not evaluate the potential changes in population, housing, and employment between now and 2020, nor does it evaluate the secondary environmental impacts of the induced growth. Impacts that should be evaluated include water quality impacts from runoff; wetland impacts from direct fill as well as upland development; fragmentation of habitat; demand on water supplies; and other related issues. Development leads to an increase in impervious surfaces such as rooftops, roads, and parking lots; these impervious surfaces affect the quantity and quality of stormwater runoff that reaches water bodies. In a national runoff study, a 1-acre parking lot was found to produce a runoff volume almost 16 times as large as the runoff volume produced by an undeveloped meadow. In addition to changes in hydrology (and reduced groundwater recharge), development can result in increased pollutant loadings (including nutrients),and increased water temperature. In addition to impacts on streams and lakes, development can have secondary impacts on wetlands. EPA's 404(b)(1) guidelines require an analysis of cumulative impacts, including previous wetland fills and likely future wetland losses from secondary impacts. The CEQ defines cumulative impacts as the

[3] EPA and FHWA plan to cosponsor training sessions in the next few months on the range of methods available for analyzing secondary impacts, and using the NH I-93 "Delphi process/Expert Panel" as a case study. One of these sessions is planned for Hartford and we would welcome attendance by ConnDOT, CT office of FHWA, the MPO, and others at this training, which will be conducted by Sam Seskin of Parsons-Brinckerhoff.

additive environmental impacts to a region combining past, present, and reasonably foreseeable future actions. ConnDOT has a responsibility under NEPA to disclose impacts on wetlands from secondary development induced by the project.[4]

Compensation Plan

As explained above, EPA believes the Statement and Plan considerably underestimates the extent and severity of direct, indirect and secondary adverse impacts to aquatic resources from the proposed Route 11 project. Correspondingly, the preliminary compensation plan falls far short of fully mitigating those adverse impacts. In particular, the Plan relies on wetland creation to compensate for direct impacts. Wetland creation is the riskiest type of compensation, especially for forested and shrub wetlands and vernal pools, the types of resources affected in this instance. Even where the structure of the wetland can be successfully replicated, it may be impossible to recreate the landscape setting pivotal to the value of the lost wetlands. Creation of forested wetlands rarely has been documented as successful in replacing the suite of lost and degraded wetlands functions and values. It requires especially lengthy monitoring periods (> 10 years) and complex monitoring plans to properly track establishment and progress. In addition, a few of the hydrological (e.g., ground water discharge/recharge) and biogeochemical (e.g., production and export) functions of the lost and degraded forested and shrub wetland systems are likely uncompensable. Where, as may be the case here, one to one acreage of attempted wetland replacement would fall short of replicating for the lost functions and values, a higher ratio of compensation should be considered.

EPA will evaluate further the land preservation component of the compensation plan both in terms of extent and location once a better grasp of the full breadth of the project's impacts becomes clear. At this juncture, we emphasize that the underlying purpose of the land protection aspect is twofold: 1) to preserve habitat of sufficient size and quality to protect the wildlife populations which rely upon the aquatic resources in the corridor and 2) To protect valuable aquatic resources that are vulnerable to development. Both of these entwined objectives aim toward reducing the potential for the project to contribute to significant degradation when viewed in the context of cumulative impacts.

Conclusion

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[4]An issue relevant to ConnDOT's broader NEPA review (though not necessarily from perspective of compensation for aquatic resource losses) evaluation should be done of the potential for negative impacts on the urbanized areas of southeastern Connecticut that are losing population, and on existing commercial centers. Studies have shown that highways influence land prices, population, and employment changes near the project, and the land use effects are likely at the expense of losses elsewhere. Transportation access is only one of several factors that has led to the decentralization of US metropolitan areas, but the potential impacts of Route 11 on urban areas such as Groton, New London, and Norwich that are losing population should be studied and disclosed.

The explanation above underscores EPA's long-running, well-documented reservations about the Route 11 project. The corridor contains outstanding water and wetland resources, and associated upland habitats, that provide an array of highly valuable ecological functions. Attempting to compensate for significant impacts to such complex and valuable areas is a formidable and expensive task. However, we stand ready to assist ConnDOT should it choose to move forward

with a more comprehensive inventory of aquatic resources and with a re-evaluation of direct, indirect, and secondary adverse impacts.

Thank you for the opportunity to comment on this aspect of the Route 11 project. Please feel free to call either Matt Schweisberg at 617-918-1628 or me at 617-918-1543 if we can provide additional information or discuss any aspect of this letter.

Sincerely,

Douglas A. Thompson
Office of Environmental Stewardship

cc: Chris Godfrey, USACE, Concord, MA
Vern Lang, USFWS, Concord, NH
Amy Jackson Grove, FHWA, Glastonbury, CT

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Tufts University, Medford, MA.